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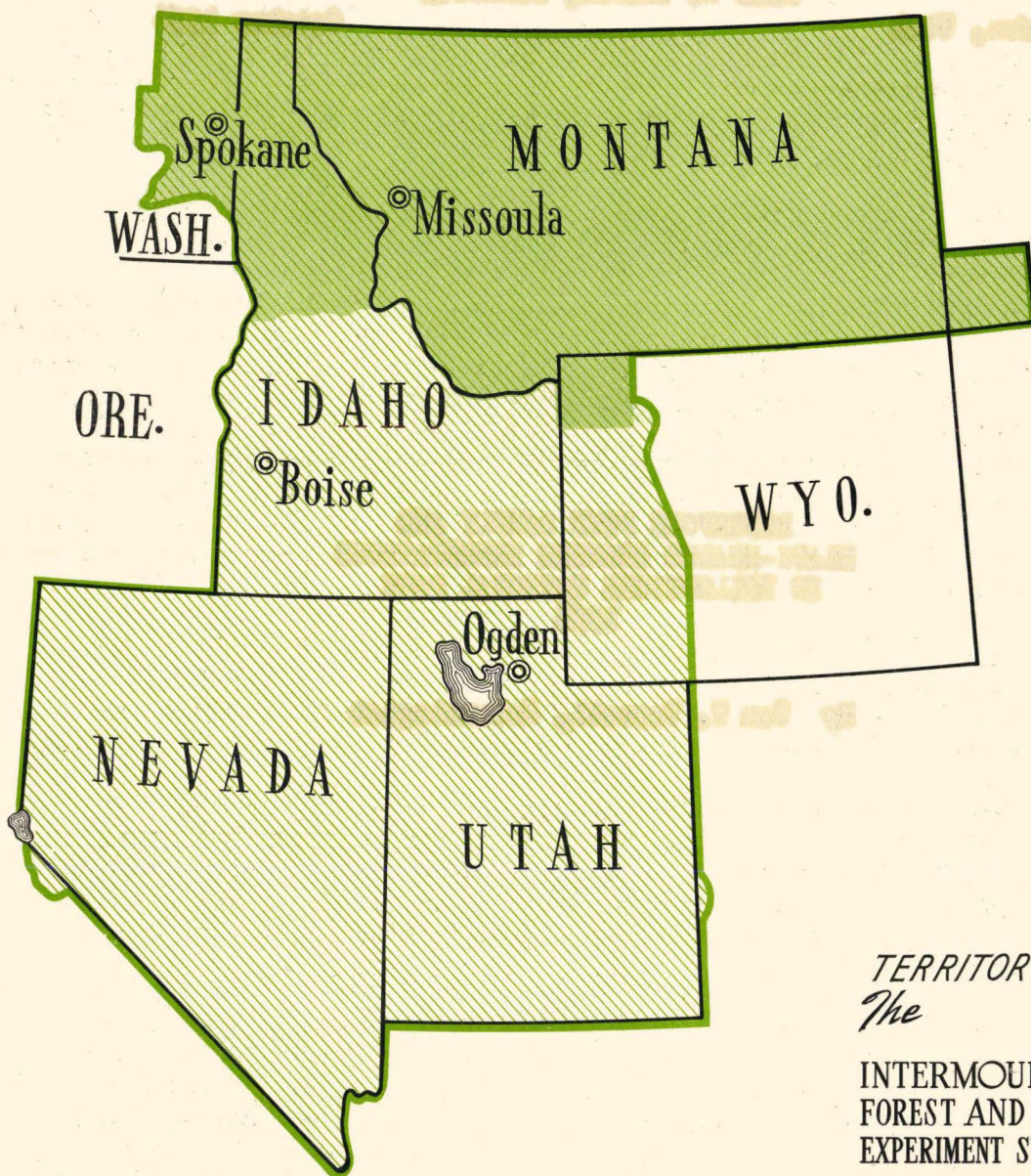
October 1956

LODGEPOLE PINE SAWFLY AND
BLACK-HEADED BUDWORM INFESTATIONS
IN YELLOWSTONE NATIONAL PARK
1956

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Prepared By The
Forest Insect Laboratory
Missoula, Montana

The AREA COVERED BY THIS REPORT



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The MISSOULA FOREST INSECT LABORATORY is a Field unit of the Intermountain Forest and Range Experiment Station at Ogden, Utah. The Laboratory conducts forest insect research, surveys forest insect outbreaks, and gives technical advice on cooperative insect control programs in Montana, northwestern South Dakota, northwestern Wyoming, northern Idaho, and northeastern Washington. The functions are conducted in the remaining station territory by staff entomologists at Ogden, and Boise, Idaho.

LODGEPOLE PINE SAWFLY AND
BLACK-HEADED BUDWORM INFESTATIONS
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On September 4, 1956 an aerial survey was made over the southwestern part of Yellowstone National Park to observe areas infested by the lodgepole pine sawfly, (Neodiprion burkei Midd.) and the black-headed budworm, (Acleris variana (Fern.)).

An outbreak of these defoliating insects in the lodgepole pine and alpine fir stands in the Bechler Basin was reported by National Park Service personnel in 1955. Subsequent ground examinations by the Missoula Forest Insect Laboratory established that the lodgepole pine sawfly was active in the lodgepole pine stands and that the black-headed budworm was feeding on the current foliage of alpine fir. The budworm damage in the fir was quite heavy. The insect had also been feeding to a limited extent on Douglas-fir and spruce. An aerial survey in 1955 provided further information which indicated that approximately 5,200 acres of lodgepole pine type were heavily damaged by the sawfly and an additional 9,500 acres showed evidence of black-headed budworm infestation in alpine fir. In part of this last acreage sawfly damage could be seen occasionally in the lodgepole pine.

At the time of the 1955 aerial survey, the visible evidence of infestation by both insects was not difficult to see: rusty-red foliage on the lodgepole pine could be seen from considerable distance and red foliage in the upper crowns of the alpine fir was readily visible.

Damage from the sawfly and budworm was again mapped from the air during the 1956 survey (Figure 1). The pattern of visible damage changed during the year with an apparent decrease in sawfly activity and an increase in the acreage infested by the black-headed budworm. The mapped area is estimated at 1,300 acres of sawfly and 19,200 acres of budworm damage.

Visible evidence of damage was much more difficult to see in 1956 than it was in 1955. The 1956 sawfly damage in lodgepole pine had a silver-green or greenish-yellow appearance accompanied by thin-foliaged crowns. The visible evidence of black-headed budworm infestation in the alpine fir had very much the same appearance as spruce budworm damage in this timber type: the tree tips were a dull reddish-brown and the sides of the crowns had a slightly "scorched" appearance.

The visible damage from the budworm was classified as very light in the area north and west of the Bechler River. The evidence of feeding was heavier along the river itself and in the area for a few miles immediately south of the Bechler drainage. The damage seemed to be less along the southern margin of the plateau between Bechler and Mountain Ash Creek and was classed as light in the Mountain Ash Creek drainage. Here again, however, the evidence of infestation was more easily seen along the stream.

The degree of damage as observed from an airplane does not necessarily mean that the insect population is low or high or that the potential of the insect is greater or less. It is only a measure of visibility and has little value other than as a record of the current damage to the trees. In classifying the area as to damage, very light means that the evidence of feeding was difficult to see and was usually intermittent, light means that the damage could be seen more readily and was more or less continuous.

The general impression gained from the 1956 aerial survey is that the black-headed budworm damage is more widespread than in 1955 but has caused less damage to the trees. The sawfly damage seemed to be less in acreage and also with a lighter degree of damage to the trees. Some of the lodgepole observed, however, had very little foliage in the crowns.

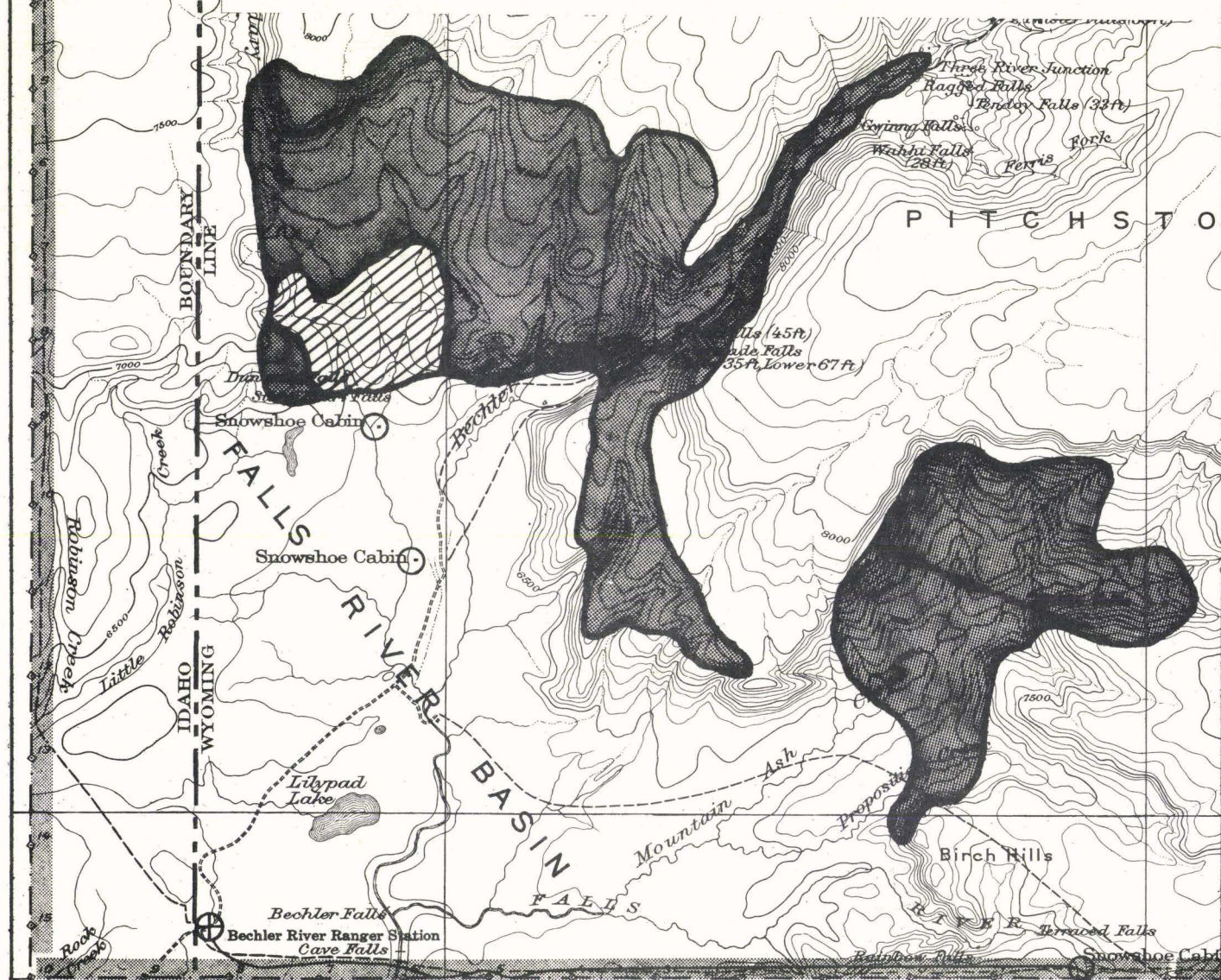
A ground examination of the sawfly and budworm infestations by Laboratory and Park personnel on August 16 disclosed evidence of almost complete mortality of the two insect populations which had occurred during the larval stage. The mortality was believed to have resulted from the effects of insect disease, presumably a polyhedral virus. At the time of the examination the sawfly brood development should have reached the prepupal larval or pupal stages, but no living specimens of either could be found. Budworm development, likewise, should have reached the pupal stage, but none of these, either, were found. From this, it appears that both infestations terminated from natural causes during the summer of 1956.

Figure: 1

LODGEPOLE PINE SAWFLY And BLACK-HEADED BUDWORM In YELLOWSTONE NATL. PARK

1956

Aerial Survey



Visible sawfly damage in lpp



Visible budworm damage
in alpine fir

Scale: $\frac{1}{2}$ in. approx. 1 mile